celebrated picture by Holbein hangs in a hall close by. In that picture the King is presenting the charter to the Surgeons. On his right hand are the physicians, Dr. Chambers and Sir William Butts. Previously to this time I believe the two Colleges held an examination similar to the conjoint scheme at the present day.

Sir William MacCormac (President of the Royal College of Surgeons of England), speaking for surgery, said the members of the profession outside the army and those within its ranks were grateful for what the noble Marquis, the Secretary of State for War, had done for those who thus served their country in the Medical Department of the army. He had agreed to grant the two great wishes which have been pressed upon him—army rank and the formation of an army medical corps. Passing to the historical connection mentioned, Sir William MacCormac said: In the history of the City of London one might recall the names of many distinguished men in our profession who have served their country in the wars. The Father of English Surgery, Richard Wiseman, surgeon to King Charles I. and Sergeant-Surgeon to King Charles II., had an eventful career during the Civil War. He was taken prisoner after the Battle of Worcester, and again while practising his profession as a surgeon in the Old Bailey at the sign of the "King's Head" he was taken to the Tower, and nearly lost his own head during the Commonwealth. About the same time John Woodhall, a surgeon at St. Bartholomew's Hospital, Surgeon-General to the East India Company, also a celebrated surgeon in this old City of London, who had served both in the army and in the navy, dedicates his curious work on surgery and the duties of the surgeon's mate to the "King's most excellent Majestie" Charles I., and also to the Right Hon. Sir Morris Abbot, Lord Mayior. Woodhall speaks of himself as an ancient master of the mysterie of Barber Surgeons, an old City company which became transformed in lapse of time, let us hope improved, into the Royal College of Surgeons, while the Apothecaries, who did so much in their time for the profession of this country, and still do so, continue as one of the City companies. So there are points of contact between our profession and the City of London.

Sir William Turner (President of the General Medical Council) proposed the toast of "The Houses of Lords and Commons," coupled with the names of Lord Lister and Sir Charles Cameron, both of whom replied.

Sir George Duffey proposed "The Health of the Right Hon. the Lord Mayor." In the course of his reply the Lord Mayor said: I have inaugurated this dinner to-night in the hope but not with the assurance that my successors will follow on with it. I see no reason, looking to the facts that almost every other profession has been recognised in this hall, why the medical profession should not be included with them.

NOTES.

THE first of the two annual conversaziones of the Royal Society was held yesterday evening, as we went to press.

THE following fifteen candidates were selected by the Council of the Royal Society on Thursday last to be recommended for election into the Society:—Mr. H. F. Baker, Prof. E. W. Brown, Dr. A. Buchan, Mr. S. F. Harmer, Mr. A. Lister, Lieut.-General C. A. McMahon, Dr. W. Osler, the Hon. C. A. Parsons, Prof. T. Preston, Prof. E. W. Reid, Mr. A. Scott, Mr. A. C. Seward, Mr. W. A. Shenstone, Mr. H. M. Taylor, nd Mr. J. Wimshurst. The certificates of these candidates are given in another part of the present number.

THE annual visitation of the Board of Visitors of the Royal Observatory, Greenwich, will take place on Saturday, June 4. The Observatory will be open for inspection by invited guests at 3 o'clock.

The seventieth annual meeting of the German Association of Naturalists and Physicians will be held at Düsseldorf on September 19-24.

AT last week's meeting of the Paris Academy of Sciences it was announced that the French Minister of Public Instruction had asked the Academy for an expression of opinion upon the subject of the proposed law to change the national time. The communication was referred to a committee previously appointed to consider the proposed modifications.

THE following are the names of the Royal Commissioners appointed to inquire and report as to methods of treating and disposing of sewage:—The Earl of Iddesleigh (chairman), Sir Richard Thorne Thorne, K.C.B., Prof. Michael Foster, Prof. William Ramsay, Major-General Constantine Phipps Carey, Dr. James Burn Russell, Colonel Thomas Walter Harding, Mr. Thomas William Killick, and Mr. Charles Philip Cotton.

ON Monday next, May 16, a special evening meeting of the Royal Geographical Society will be held in commemoration of the 400th anniversary of the discovery of the Cape route to India by Vasco Da Gama. A paper on the subject will be read by the President. H.R.H. the Prince of Wales, H.R.H. the Duke of York, and His Excellency the Portuguese Minister, Count de Soveral, have promised to be present. The anniversary meeting of the Society will be held on May 23, and the annual conversazione will be held in the Natural History Museum, South Kensington, on the evening of Thursday, June 23.

THE Council of the Royal Geographical Society have awarded one of the two Royal medals to Dr. Sven Hedin for his work in Central Asia, and the other to Lieutenant E. A. Peary, United States Navy, for his explorations in Northern Greenland. The Council have also made the following awards:—The Murchison grant to Mr. H. Warington Smyth for his several journeys in Siam; the Back grant to Mr. George P. Tate for his survey work in Afghanistan, Baluchistan, especially Makran, Aden, and on the Indus; the Gill memorial to Mr. Edmund J. Garwood for his geographical work in Spitsbergen during two seasons, in company with Sir Martin Conway; the Cuthbert Peek grant to Mr. Poulett Weatherley for his exploration of the region between Lakes Mweru and Bangweolo. The following foreign geographers and travellers have been elected honorary corresponding members:—Don Marcos Jimenes de la Espada, Don Francisco Moreno, Buenos Ayres; Marquis of Rio Branco, Brazil; Dr. Thoroddsen, of Iceland; Prof. Ratzel, of Leipzig.

SEVERAL changes have have been made on the staff of the Geological Survey. The vacancy caused by the retirement of Mr. George Sharman, senior Palæontologist, has been filled by the appointment of Dr. F. L. Kitchin as Assistant Palæontologist, under Mr. E. T. Newton, F.R.S., Palæontologist. Dr. William Pollard has been appointed an Assistant Geologist in the Petrographical Department of the Survey at Jermyn Street, in the room of Prof. W. W. Watts; and Mr. C. B. Wedd has also been appointed an Assistant Geologist, to fill the vacancy caused by the resignation of Mr. C. E. De Rance. Mr. H. J. Seymour has joined the staff in Ireland as Assistant Geologist, to take charge of the petrographic work, in the room of Prof. W. J. Sollas, F.R.S.

AT a recent meeting of the Gesellschaft für Erdkünde held in Berlin, Dr. Gerhard Schott of the Deutsche Seewarte gave an account of the provisional plans for the forthcoming German deep-sea expedition. The expedition was originally suggested by Prof. Chun, of Breslau, and it was at first intended to confine its labours strictly to zoological research; but the sum granted by the Imperial Parliament (15,000*l.*) is considered sufficient to allow of a comprehensive series of physical and chemical observations being undertaken as well. Soundings will be made in little-explored regions in the eastern part of the South Atlantic, on the sub-Antarctic plateau to the east of the Cape, and in the immense stretch of the Indian Ocean between the equator and 30° S. lat. Special attention will be given by the chemists to analyses of the gas-contents of the waters at different depths. The vessel, which will probably be chartered from the Hamburg-American line, is to be a steamer of at least 2000 tons, with a sea-speed of not less than 10 knots: the *personnel* of the expedition will include, besides Prof. Chun, a navigating officer, four zoologists, a botanist, an oceanographer, a chemist, a doctor, and a photographer. The expedition is to start in August, beginning work in the Faëroe-Shetland Channel, and going southward by the Canaries and Cape Verd Islands to the coast of German West Africa, where some special fishery problems are to be studied. From the Cape, the meeting-place of the hot and cold waters to the east is to be examined, and if possible an excursion made southward to Prince Edward Island. Next the waters east of Madagascar will be visited, and after touching at Zanzibar the expedition will work through the region of the Seychelle and Chagos Islands to Colombo, and thence back to Aden by the Eight-degree Channel, returning to Hamburg from Aden direct. The whole time occupied will probably be eight or nine months. We hope shortly to publish a detailed account of the final arrangements of the expedition.

The death is announced of Prof. D. S. Kellicott, professor of zoology at Ohio State University.

The Royal Agricultural Society has accepted the invitation to hold its country meeting in York in 1900.

Prof. John Milne has left England for a few weeks on a short tour, with the object of visiting seismological observatories in Italy, Sicily, and Germany.

The Croonian Lectures of the Royal College of Physicians of London will be given by Dr. Sidney Martin on June 14, 16, 21 and 23. The subject is the chemical products of pathogenic bacteria considered with special reference to enteric fever.

The Presidents of the Institute of Chemistry, Society of Chemical Industry, and Society of Public Analysts have sent out invitations for a reception to be held at the Royal Institute of Painters in Water Colours on Tuesday, May 24.

A meeting of the Federated Institution of Mining Engineers will be held in the rooms of the Geological Society, Burlington House, on Thursday and Friday, May 19 and 20, under the presidency of Mr. A. M. Chambers.

It is announced in the *Kew Bulletin* that Mr. J. A. Gammie, Deputy Superintendent of the Government Cinchona Plantation in Sikkim, has retired from that post, and Mr. Robert Pantling has been appointed his successor. Both Mr. Gammie and Mr. Pantling went out to Calcutta from Kew.

At a meeting of the Essex Field Club to be held at Chingford on Saturday, May 21, Dr. H. C. Sorby, F.R.S., will lecture on "The Preparation of Marine Animals as Transparent Lantern-slides, illustrated by Characteristic Forms of the Essex Coast." The subject is one which has occupied Dr. Sorby's attention for some time, during his cruises off the coast in his yacht *Glimpse*. The preparation of marine animals as lantern-slides, so as to show not only their true general form, but also much of their internal structure, is as much a chemical as a biological problem, and different animals require very different treatment. A general account of the methods of preparing such slides was given by Dr. Sorby in a recent number of NATURE (March 31, p. 520). The company of naturalists and others interested in the subject is invited by the Essex Field Club. Cards for the meeting may be had of the Hon. Secretaries, Buckhurst Hill, Essex.

On Saturday, May 14, the Yorkshire Naturalists' Union, of which Prof. Michael Foster is now the President, will hold a meeting at Clapham, Yorkshire, for the investigation of Ingleborough and Bowland Knotts. Special facilities have been obtained for the examination of the great Ingleborough Cave, which can be traversed for a distance of about half a mile. The cave is of little interest to the archæologist, no remains either of flint implements or bones having been found in it, but it is of surpassing interest to the physical geologist and to those who wish to study the formation of different forms of stalactites and stalagmites. An instructive leaflet containing notes on the geology and biology of the district has been prepared for the information of the members of the Union.

The third International Congress of Applied Chemistry will be opened in Vienna on July 28, and will last until August 2, inclusive. From the *Chemical News* we learn that the subjects of the Congress are as follows: (*a*) Consultations concerning important questions in all departments of applied chemistry, and particularly of those the solution of which is a matter of public interest. (*b*) Agreement upon methods to be considered internationally valid for the analysis of such products as are valued upon the basis of their chemical composition. (*c*) Agreement upon methods to be considered internationally valid for the use of the different chemical industries. (*d*) Discussion on questions of instruction in applied chemistry, and consultations upon general affairs of chemists. And (*e*) commencement of a friendly understanding between the representatives of the different departments of applied chemistry at home and abroad. Papers to be read at the meeting should be in the hands of the General Secretary, M. F. Strohner, Vienna IV/2, Schönburgstrasse 6, not later than June 1. It is requested that no paper be longer than five pages octavo in print.

An automatic telephone exchange system, which does away with the necessity for the staff of skilled operators at present exquired at exchanges, is being introduced into this country from the United States by the Direct Telephone Exchange Syndicate. Instead of ringing up the central station, requesting the attendant to put him in communication with the person to whom he wishes to speak, and waiting while the required alterations are made on the switch-board, the subscriber to an exchange worked on the automatic plan is himself able to connect his telephone with that of any other subscriber without the intervention of a third person. Each subscriber has upon the front of his instrument a circular disc pivoted at the centre, and having one-half of its circumference inscribed with figures from 0 to 9. If he wishes to communicate with another, he sets the disc so that the number of the other subscriber appears upon the dial, and he then finds his telephone in circuit with that of the person whose number he has indicated by his disc. When he has finished his conversation he simply hangs his receiver on its hook. Immediately, the switch which represents him at the exchange returns to its normal position, and communication is cut off. A third subscriber cannot get possession of the line until the first two have done with it; hence there is no possibility of interruption, and secrecy is assured. In the United States a considerable number of exchanges are in regular operation on this plan, and are stated to be proving perfectly satisfactory to their subscribers.

The Melloni thermo-pile has of late years fallen somewhat into disuse. For the detection and measurement of small thermal changes, the bolometer of Langley, the micro-radiometer of Boys, and the extremely sensitive photo-electric cells of Minchin, have to some extent supplanted the older instrument. In a recent number of the *Zeit. Instrumentenkunde*, Prof. Heinrich Rubens shows that the capabilities of the original apparatus may be greatly increased if proper care is given to the construction, particularly by reducing the thermal capacity of the couples. Antimony and bismuth are mechanically ill-suited for the purpose; he therefore replaces them by iron and the nickel alloy "constantan," in the form of fine wires. The thermo electric "power" of an iron-constantan single couple is only about half that of antimony-bismuth, but the gain in sensitiveness, due to lessened thermal capacity, quite outmeasures this defect. Prof. Rubens has succeeded in making such a thermo-pile with twenty couples in a line of 20 mm.; the resistance is 3·5 ohms, and the E.M.F. 0·00106 of a volt per 1° C. This must be regarded as a very great advance in radiometry. It would be interesting to compare this instrument with photo-electric cells as regards their respective power of measuring stellar radiations. It should be noted that this is not the first time an iron-constantan couple has been applied to thermal investigations.

"THE collapse of a spherical shell under pressure" is a problem which has long puzzled the minds of mathematicians, and one which both engineers and geologists would be glad to see solved. An interesting series of experiments in which a hollow hemisphere of metal was made to collapse by the pressure applied on top of it by another hemisphere or plane, is described by Prof. H. Schoentjes, of Ghent, in the current *Bulletin de l'Académie royale de Belgique* (1898, No. 3). Prof. Schoentjes gives excellent photographs showing various cases of collapse in segments; triangular, quadrangular, pentagonal and hexagonal forms being all represented. The present paper forms the sequel to one published in 1890, and among the author's conclusions the following are noteworthy:—When two similar hemispheres of 10 cm. diameter were crushed together by a hydraulic press with their summits in contact, only one of the hemispheres collapsed; the cavity formed was spherical, and was moulded on the undeformed hemisphere just as if the latter hemisphere were solid. When a hemisphere of 15 cm. diameter was crushed against one of 10 cm, the smaller one penetrated nine times out of ten into the larger one; the cavity was at first spherical, but afterwards its margin became polygonal. In one case only (and the author could not succeed in repeating the experiment), both hemispheres were deformed; the larger one first penetrated the smaller, but under a force of 80 kilogrammes the edge of the cavity began to penetrate the large hemisphere. When a hemisphere was crushed by a plane the normal deformation was found to be hexagonal.

THE mathematical theory of the propagation of earthquake shocks is the subject of a somewhat interesting investigation at the hands of M. P. Rudski, an abstract of whose papers has just reached us (*Anzeiger der Akademie der Wissenschaften in Krakau*, November 1897). The author examines the consequences of the assumption made by Prof. A. Schmidt, of Stuttgart, that the wave-velocity in the interior of the earth is a function of the radius vector, which decreases as the latter increases. Under such circumstances, the rate of propagation of earthquakes along the earth's surface decreases from the epicentre outwards till a certain circle is reached, and then increases up to the antipodes of the epicentre. The position of the bounding circle in question depends on the depth of the disturbance, and M. Rudski considers it possible, from observations of earthquakes, to determine the relation between the wave-velocity and the radius vector.

A SERIES of observations of the temperature of the soil at the observatory of Catania from 1892 to 1896 has been published by Dr. Emmanuele Tringali in the *Atti dell'Accademia Gioenia di Scienze Naturali*. In addition to confirming the well-known laws according to which the diurnal and annual variations of temperature decrease and undergo retardation with increasing depth, Dr. Tringali finds that at Catania the velocity of transmission of the diurnal fluctuations is about 20 cm. for every 7½ hours, and that these fluctuations become practically unimportant at a depth of 60 cm., where they only amount to a few tenths of a degree when the atmospheric temperature changes as much as 17°

THE summary of the Weekly Weather Report for the first quarter of this year, recently issued by the Meteorological Council, shows that in all the principal wheat-producing districts, except the north of Scotland, there is a considerable deficiency in the amount of the rainfail; while in the grazing, &c., districts a deficiency is everywhere shown. Looking at the values for the winter half-year, the excess in the north of Scotland is 3·5 inches; this is, of course, due to the tracks taken by the areas of low barometric pressure. The greatest deficiency occurs in the south of England and Channel Islands, where it amounts to 7 inches, and it exceeds 5 inches in the midland parts of England. As these values are for large districts, of course at some individual stations the deficiency is much more marked.

WE drew attention last week to the important meteorological station established by the Corporation of Southport, and we are glad to learn that the municipal authorities at many other stations are not behind that place in recognising the value of accurate meteorological observations, and of placing the stations in connection with the Meteorological Office or the Royal Meteorological Society. Among these we may specially mention the station established by the Corporation of Eastbourne, under the superintendence of Mr. R. Sheward, who has for many years published reports of the observations at that favourite sea-side resort, where every care has been taken to place the instruments in the best possible positions. Eastbourne enjoys a large amount of bright sunshine, the average annual duration being 1719 hours, while for London the average is only 1240 hours. Mr. Sheward bears witness to the value of the storm-warning telegrams issued by the Meteorological Office. He states that since the establishment of storm signals there, in 1893, no mishap has occurred to the fishing fleet, although his tables show that some serious gales have been experienced.

THE Bureau of Agriculture and Immigration of the State of Louisiana has recently issued the first volume of a treatise on the history, botany, and agriculture of the sugar-cane, and the chemistry and manufacture of its juices into sugar and other products, by Prof. W. C. Stubbs, Director of the Audubon Park Experimental Station at New Orleans. One chapter is devoted to the botanical relations of the plant, one to its anatomy and physiology, one to its modes of reproduction, and one to bacteriological notes on red cane.

THE plant yielding what is known in commerce as Ceara rubber or Maniçoba, and shipped from the Brazilian ports of Ceara, Bahia and Pernambuco, was identified at Kew eleven years ago as *Manihot Glaziovii*, Muell. Arg. Specimens of the plant were sent from Kew to our Colonies and possessions which seemed suitable for its cultivation, and the results of the attempts to introduce the Ceara rubber tree are described in the latest issues of the *Kew Bulletin* (Nos. 133–134, 1898). The following is a summary of the information thus obtained, and it furnishes another example of the valuable work done by Kew in the endeavour to increase the natural resources of British possessions: (1) The plant is readily propagated both from seeds and cuttings. Seeds are abundantly produced in almost every part of the world where the plant has been introduced. They may be gathered from plants when only three to five years old. There is therefore the great advantage that a large area could be planted within a comparatively short period. Sowing the seeds in the position where they are to grow permanently is universally adopted in Brazil. It is possible, if adopted elsewhere, this plan would greatly reduce the cost of establishing plantations. (2) The Ceara rubber plant is very hardy, a fast grower, free from insect and fungoid attacks, requires little or no attention when once established, and thrives in poor, dry and rocky soils unsuited to almost any other crop. It is evident, however, that the yield of a few trees cannot be remunerative, and only large areas can hope to make the industry a paying one. (3) It produces a good class of rubber, second only when well prepared to the best Para rubber. For this there is a steady and continuous demand. The yield per tree is apparently small, but a return is obtained earlier than from any other rubber plant. With thick planting and judicious thinning as the trees grow up, it may be possible to increase the yield hitherto recorded; while with skilful treatment the permanent trees may be tapped twice yearly, and last in a productive state for fifteen to twenty years. (4) In spite, therefore, of the apparent want of success which so far has attended experiments with Ceara rubber plants in Ceylon and other countries, the increasing importance of rubber as an article in large demand in all civilised countries at good prices, suggests a reconsideration of the merits of this interesting plant. In many of our Colonies possessing a dry climate and a poor stony soil, it is possible that large areas could be profitably occupied with Ceara rubber trees so grown as to provide annual crops for tapping.

Mr. D. A. Gilchrist, Director of the Agricultural Department of the University Extension College, Reading, has issued his fourth annual report upon the field experiments carried on during last year. Since 1894 field experiments have been made at the College, and the results have been of distinct service to agriculturists. The County Councils of Berkshire, Dorset, Hampshire and Oxfordshire co-operate with the College in this work through their Technical Instruction Committees; subsidies being granted by these bodies to the College to meet the expenses. During the season 1897 the work included the testing of manures on most of the principal farm crops, and a further development was made in the direction of carrying out field experiments of a more continuous character, such as the effect of manures, applied at the beginning of a rotation of crops, throughout the whole rotation. The results of all field experiments are of much more value in the locality in which they are carried on than elsewhere; nevertheless, Mr. Gilchrist's report gives much useful information as to the effects of various manures on different crops, under very different conditions of soil; and from this, tolerably safe general conclusions may be drawn. The Agricultural Department of the University Extension College at Reading may indeed be compared with the agricultural experiment stations of Canada and the United States, for it is performing, so far as it is able, the functions of those institutions by conducting inquiries of value to agriculturists, and acting as a reference bureau.

We have received from P. K. Kozloff, member of the last Russian Tibet expedition, a very interesting contribution to the Lob-nor controversy. It is issued by the Russian Geographical Society as a pamphlet ("Lob-Nor"), and contains the Russian traveller's remarks concerning the lakes discovered by Sven Hedin, for which the Swedish explorer claims to be the true Lob-nor; while the lake Kara-koshun-kul, discovered by Prjevalsky, and described by him as the Lob-nor, would be, in Sven Hedin's opinion, but a secondary and temporary basin. P. K. Kozloff gives in his pamphlet all materials which may enable the reader to come to an independent opinion, namely, a map of the region, embodying the Russian surveys and Hedin's discovery; a copy of the Chinese map upon which Richthoffen and Hedin based their argumentation; and abstracts from Prjevalsky's, Pyevtsoff's, Bogdanovich's, Hedin's, and Kozloff's descriptions of the Lob-nor region. The map already shows to what extent Hedin's claims are admissible. The author then discusses Richthoffen's and Hedin's arguments. The Chinese map, which gives to the Lob-nor a more northern position than the position occupied by Prjevalsky's Lob-nor, Kozloff shows, is wrong, because it gives to the junction of the Tarim with the Konche daria (Airylgan) a much more northern position than was found already in 1765 by the Jesuits, and confirmed since by General Pyevtsoff. In fact, most of the positions on the Chinese map have more northern latitudes than the real ones. The lake Khas of the same map, with which Richthoffen and Hedin wanted to identify Prjevalsky's Lob nor is, beyond any possible doubt, the lake Ghas of Prjevalsky, situated beyond the Nutsitu ridge marked on the Chinese map. As to the chain of four lakes discovered by Hedin, of which the southern only had been previously visited by Kozloff, they have been formed by the Konche daria, which, coming from the north-west, is continually shifting its bed in its lower part towards the right, *i.e.* westwards. The desert in the north of the Lob-nor has been formed through that shifting of the bed of the Konche daria, and the chain of lake-shaped enlargements of the old bed of the Konche daria, the Ilek, for which Hedin claims to be the historical Lob-nor, is nothing but a temporary formation, due to the rightward shifting of the river bed. Kozloff develops this hypothesis with much skill, and concludes that Prjevalsky's Lob-nor (the Kara-koshun-kul) must have extended much further northwards and eastwards; but the lowest part of the depression, which is occupied by this lake, always was the historical Lob-nor.

The additions to the Zoological Society's Gardens during the past week include two Sooty Phalangers (*Trichosurus fuliginosus*, ♂ ♀) from Tasmania, presented by Mr. A. Walley; four Common Vipers (*Vipera berus*), British, presented by Mr. J. Amos; a Salvadoris Cassowary (*Casuarius salvadorii*) from New Guinea, a Glaucous Macaw (*Anodorhynchus glaucus*) from Paraguay, a Common Chamæleon (*Chamæleon vulgaris*) from North Africa, deposited; a Common Zebra (*Equus zebra*, ♀), bred in Amsterdam; six Garganey Teal (*Querquedula circia*, 3 ♂, 3 ♀), European, purchased.

OUR ASTRONOMICAL COLUMN.

The Spectrum of Hydrogen in Nebulæ.—If hydrogen gas in a Geissler tube be examined spectroscopically, the brightest line observed is Hα. If, on the other hand, the lines of hydrogen in nebulæ be examined, Hβ may sometimes be well seen, while Hα, the C line, can scarcely be detected. To account for this apparent change of intensity several investigations have been made, and as long ago as 1868 Lockyer and Frankland showed that the hydrogen spectrum could be reduced to the single line Hβ under certain conditions of temperature and pressure. Prof. Scheiner has recently investigated the question of the luminosity of hydrogen in the nebulæ (*Astrophysical Journal*, No. 4, April 1898), and he has attempted to introduce "circumstances approximating to those under which the nebulæ emit light" to find out whether objective changes can be produced in the spectrum of hydrogen in an attenuated state, or whether the subjective weakening of the light is the determining factor, and if so to what extent. By exciting tubes filled with hydrogen in the field of a Tesla high tension transformer, the space surrounding them having a temperature of about – 200° C., Koch's investigations were confirmed that the spectrum of hydrogen did not change when the surrounding temperature was reduced as low as – 200° C. Prof. Scheiner next investigated the physiological disappearance of the Hα line, and without entering on the procedure adopted, which is described in the journal referred to above, we will limit ourselves to the result. The absence of the Hα line in the hydrogen spectrum is due to physiological reasons, and it is consequently not permissible to deduce from this peculiarity of the hydrogen spectrum in the nebulæ any conclusion whatever concerning the physical conditions under which the light emission of these celestial bodies takes place. Whether certain nebulæ may not prove exceptions to this rule, is to be left an open question; it is certainly not impossible that such may be the case.